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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,879	11/30/2000	Jang-hoon Yoo	1293.1156/MDS	9729

21171 7590 04/03/2003

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EXAMINER	
TRAN, THANG V	
ART UNIT	PAPER NUMBER
2653	7

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/725,879	YOO ET AL.	
	Examiner	Art Unit	
	Thang V. Tran	2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36,38,39 and 42-63* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *59* is/are allowed.

6)☒ Claim(s) *1,8-14,20-36,38, 42-58 and 60-63* is/are rejected.

7)☒ Claim(s) *2-7 and 15-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

The amendment dated 01/22/03 has been considered with the following results:

Claim Objections

1. Claim 13 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 11. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 8-14, 20-29, 38, 39, 42-58, and 60-63 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (US 6,266,315).

Lee et al., according to Figs. 2-14B, show an optical system comprising all the features of the instant claimed invention as interpreted below:

Regarding claim 1, see Fig. 3A, 4A or 4C which shows an objective lens comprising a first light transmitting portion (surface 311 in Fig. 3A or 4A or surface 711 in Fig. 4C); a second transmitting portion (portion at a center of a reflection surface 315 or 751B); a first reflecting portion (surface 315 or 751B) formed around the second transmitting portion for reflecting the incident beam from the first transmitting portion (311 or 711); and a second reflecting portion (513 or 713) formed around the first transmitting portion (311 or 711) for reflecting the incident beam from the first reflecting portion to the second transmitting portion, as recited in claim 1.

Regarding claim 7, see Fig. 3A, 4A or 4C which has at least one of the first and second portions comprising a path different generating portion (313, 315 or 713, 751B) for generating a separate optical path of at least a portion of the incident beam and thereby to reduce the side lobe of the light beam formed through the second transmitting portion by the difference in paths of the portion of the incident beam on the path difference generating portion and the remainder of the incident beam as recited in this claim.

Regarding claims 8-10, see the curved surface of one of the first and second portions comprising a path different generating portion (313, 315 or 713, 751B) shown in Fig. 3A, 4A or 4C.

Regarding claims 11 and 13, the first transmitting portion (311 or 711) has curvature with a negative power because it has a radius of curvature of a negative sign corresponding to its concave surface (see column 5, lines 42-44).

Regarding claim 12, see Fig. 3A or 4C which shows the angle between the optical axis and an outer ray of the incident beam passes through the second transmitting portion is apparently greater than 36 degree as recited in this claim.

Regarding claim 14, see the rejection applied to claim 1 above for an objective lens, and further see Fig. 14A and 14C which further show the use of a light source (81); an optical path changing unit (83); and photo detector (88), as recited in this claim.

Regarding claim 20, see the rejection applied to claim 12 above.

Regarding claim 21, see the rejection applied to claim 7 above.

Regarding claim 22-24, see the rejection applied to claims 8-10 above.

Regarding claim 25, see the rejection applied to claim 7 above.

Regarding claim 26-28, see the rejection applied to claims 8-10 above.

Regarding claim 29, see the rejection applied to claim 13 above.

Regarding claim 38, see Fig. 3A, 4A or 4C which shows an objective lens comprising: at least one light transmitting portion (surface 311 in Fig. 3A or 4A or surface 711 in Fig. 4C) for transmitting an incident beam; at least one reflecting portion (surface 315, 751B, 313, 713) for condensing and reflecting the incident beam from the at least one transmitting portion (311 or 711); and the at least one reflecting portion (when surface 315 or 751B is interpreted as the at least one reflecting portion) comprises is a negative power (the at least one reflecting surface 315 or 751B has a negative power as it has a radius of curvature of a negative sign corresponding to its concave surface); and wherein the at least one reflecting portion (when surface 313 or 713 is interpreted as the at least one reflecting portion) comprises is a positive power (the at least one reflecting surface 313 or 713 has a positive power as it has a radius of curvature of a positive sign corresponding to its convex surface).

Regarding claim 39, see first light transmitting portion (surface 311 in Fig. 3A or 4A or surface 711 in Fig. 4C); and a second transmitting portion (a portion at a center of a reflection surface 315 or 751B);

Regarding claim 42, see Fig. 3A, 4A or 4C which shows a single objective lens comprising a high numerical aperture (numerical aperture of 1.5 or 1.1); a first reflecting portion (surface 315 or 751B) comprises a negative power; and a second reflecting portion (513 or 713) comprises a positive power as recited in this claim. Note: the first reflecting portion (surface 315 or 751B) comprises is a negative power because it has a radius of curvature of a negative sign corresponding to its concave surface; and the second reflecting portion (surface 313 or 713) comprises is a positive because it has a radius of curvature of a positive sign corresponding to its convex surface (see column 5, lines 42-44).

Regarding claim 43, see the numerical aperture of 1.5 or 1.1 in column 7, lines 45-59, which is within the range recited in this claim.

Regarding claim 44, see a first light transmitting portion (surface 311 in Fig. 3A or 4A or surface 711 in Fig. 4C

Regarding claim 45, see a second transmitting portion (portion at a center of a reflection surface 315 or 751B).

Regarding claim 46, see a first reflecting portion (surface 315 or 751B) formed around the second transmitting portion for condensing and reflecting the incident beam from the first transmitting portion (311 or 711), and the first reflecting portion (surface 315 or 751B) comprises is a negative power as it has a radius of curvature of a negative sign corresponding to its concave surface.

Regarding claim 47, see a second reflecting portion (surface 313 or 713) for condensing and reflecting the light beam from the first reflecting portion and it also comprises a positive power as it has a radius of curvature of a positive sign corresponding to its convex surface).

Regarding claim 48, see the rejection applied to claims 42 and 43 above.

Regarding claim 49, see the rejection applied to claim 44 above.

Regarding claim 50, see the rejection applied to claim 45 above.

Regarding claim 51, see the rejection applied to claim 46 above.

Regarding claim 52, see the rejection applied to claim 47 above.

Regarding claim 53, see the rejection applied to claim 42 above.

Regarding claim 54, see the rejection applied to claim 43 above.

Regarding claim 55, see the rejection applied to claim 44 above.

Regarding claim 56, see the rejection applied to claim 45 above.

Regarding claim 57, see the rejection applied to claim 46 above.

Regarding claim 58, see the rejection applied to claim 47 above.

Regarding claim 60, see Fig. 3A, 4A or 4C which shows an objective lens comprising a first light transmitting portion (surface 311 in Fig. 3A or 4A or surface 711 in Fig. 4C) for divergently transmitting an incident light beam; at least one portion (surface 315, 751B, 513, 713) for converging the divergent light beam; and a second transmitting portion (portion at a center of a reflection surface 315 or 751B) for transmitting only the converging light beam as recited in this claim.

Regarding claim 61, see the second transmitting portion (portion at a center of a reflection surface 315 or 751B) as shown in Fig. 3A, 4A or 4C.

Regarding claim 62, see Fig. 3A, 4A or 4C which shows an objective lens comprising a first light transmitting portion (surface 311 in Fig. 3A or 4A or surface 711 in Fig. 4C) for transmitting an incident light beam; at least another portion (surface 315, 751B, 513, 713) for altering a path of the incident light beam; and a second transmitting portion (a portion at a center of the reflection surface 315 or 751B) for shielding the incident light beam and transmitting the altered light beam from the at least another portion as recited in this claim.

Regarding claim 63, see the second transmitting portion (portion at a center of the reflection surface 315 or 751B) as shown in Fig. 3A, 4A or 4C.

4. Claims 32 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Hineno (US 6,339,577)

Hineno, according to Fig. 1, shows an optical apparatus comprising: a light source (3); an optical path changing unit (4), an objective lens (7); photo detector (9), and a detecting-correcting unit (6) for detecting and correcting the aberration of the incident beam caused by variation of the thickness of the optical disk (see column 3, lines 19-25) as recited in this claim.

Regarding claim 33, see the location of the objective lens 7 shown in Fig. 1.

5. Claims 32-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Yagi et al. (US 5,920,532)

Yagi, according to Fig. 72, shows an optical apparatus comprising: a light source (1); an optical path changing unit (13), an objective lens (16); photo detector (9), and a detecting-correcting unit (14, 17) for detecting and correcting the aberration of the incident beam caused by variation of the thickness of the optical disk (see respective disclosure of Fig. 72) as recited in this claim.

Regarding claim 33, see the location of the objective lens 16 shown in Fig. 72.

Regarding claim 34, see lens 14 and 17 in Fig. 72 which are respectively interpreted as a first and second lenses recited in this claim.

6. Claim 36 is rejected under 35 U.S.C. 102(b) as being anticipated by Mashita et al. (US 4,433,340).

Mashita et al., according to Fig. 9A, shows a recording medium comprising a an information substrate including an incident surface (28) for receiving light to record or reproduce information; a recoding surface (12) on which information is recorded, and wherein the thickness of from the incident surface to the recording surface is less than 0.1mm (thickness of layer 28 in the range of 1 μm to 10 mm), as recited in the instant claimed invention. Note: the thickness, which is less than 0.1 mm with ± 5μm error as recited in this claim, is clearly within the range of 1 μm to 10 mm thickness of layer 28 of Mashita et al.

7. Claim 36 is rejected under 35 U.S.C. 102(e) as being anticipated by Kobayashi et al. (US 6,159,572).

Kobayashi et al., according to Fig. 1, shows a recording medium comprising a an information substrate including an incident surface (4) for receiving light to record or reproduce information; a recoding surface (3) on which information is recorded, and wherein the thickness of from the incident surface to the recording surface is less than 0.1mm (see column 6, lines 47-49; column 6, line 65 through column 7, line 3 which describe the thickness of layer 4 in the range of 0.0001 to 0.1 mm), as recited in the instant claimed invention. Note: the thickness, which is less than 0.1 mm with ± 5μm error as recited in this claim, is within the range of 0.0001 to 0.1 mm thickness of layer 4 of Kobayashi et al.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (6,266,315) in view of Yagi et al. (US 5,920,532) or Hineno (US 6,339,577)

Lee et al., according to Figs. 2-14B, show an optical system comprising all the features of the instant claimed invention (see the rejection applied to claim 14 above) except for the use of a detecting and correcting unit positioned between the optical path changing means and the objective lens for detecting and correcting aberration caused by the thickness variation of the disk as recited in claims 30 and 32. Yagi et al., according to Fig. 72, and Hineno, according to Fig. 1, each teaches the use of detecting and correcting unit positioned between the optical path changing means and the objective lens for detecting and correcting aberration caused by the thickness variation of the disk (see lenses 14 and 17 in Fig. 72 of Yagi or lens 6 in Fig. 1 of Hineno). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the detecting and correcting unit as taught either by Yagi et al or Hineno in the optical system of Lee et al in order to detect and correct aberration caused by the thickness of the optical disk and thereby to obtain an optical system capable to operate with an optical disk having different thickness. See lenses 14 and 17 in Fig. 72 of Yagi et al for

limitations recited in claims 31 and 34. See objective lens 85C for limitation in claim 33. See Fig. 3A, 4A or 4C of Lee et al. for limitations in claim 35.

Allowable Subject Matter

10. Claim 59 is allowed.

11. Claims 2-7 and 15-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 2-7, 15-19 and 59 are allowable over the prior art of record because the prior art of record, considered in combination or individually, fails to teach or suggest an objective lens including all features recited in claim 2, 15 or 59. Claims 3-7 and 16-19 are allowable with their respective parent claim.

Response to Arguments

13. Applicant's arguments with respect to claimed invention have been considered but are moot in view of the new ground(s) of rejection.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thang V. Tran whose telephone number is (703) 308-1551. The examiner can normally be reached on Tuesday to Friday, from 7:30AM to 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Thang V. Tran
Primary Examiner
Art Unit 2653